



## Knowledge, Attitude, and Practice using the Kangaroo Method Care in Maternal with Low Birth Weight Babies

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### Abstract

Newborn mortality is still quite high in the world, including Indonesia, one of which is caused by complications of premature birth. Kangaroo Method Care (KMC) is one way to keep the newborn's body temperature warm by making direct contact between the baby's skin and the mother's skin. The purpose of this study was to analyze the relationship between knowledge, attitude, and practice of Kangaroo Care Method for mothers with low birth weight (LBW) infants. This study is a quantitative study with a cross-sectional approach. Respondents in this study were mothers who had LBW after treatment from the Regional General Hospital (RSUD) Koja, North Jakarta who were domiciled in Koja, Tanjung Priok, and Cilincing Districts, North Jakarta, amounting to 50 people. Data was collected using questionnaires and observations, and analyzed using the Spearman Correlation statistical test. Based on the results of the study, the average score of mother's knowledge about Kangaroo Care Method was 21.76 (SD 1.06); the average score of the mother's attitude towards the Kangaroo Care Method is 26.74 (SD 0.80); and the average duration of practice for Kangaroo Care Method is 2.92 hours/day (SD 0.90). Based on the results of observations, it was found that most of the LBW mothers had practiced Kangaroo Method Care by holding the right position from Kangaroo Method Care. Based on the Spearman Correlation statistical test, it was found that there was a relationship between knowledge, attitude, and practice of the Kangaroo Care Method in LBW mothers.

### Introduction

Infant and neonatal mortality is still a problem in the health sector, both in the world and in Indonesia. The Infant Mortality Rate (IMR) and Neonate Mortality Rate are increasing from year to year. The main problem causing infant mortality is during the neonatal period, which contributes to 59% of infant deaths in Indonesia. The age of the first 28 days of life (neonatal period) is the most vulnerable time for child survival. There are several causes of death in the neonatal period, one of which is complications of premature birth which is the single largest direct cause of neonatal death and the second most common cause of under-five mortality after pneumonia (Liu et al., 2012).

Preterm birth accounts for 50% of all neonatal deaths (Lawn et al., 2010).

The weight of the baby at birth plays an important role in the health and survival of the baby. Low Birth Weight (LBW) is a group of babies born weighing less than 2500gr regardless of gestational age, either premature or at term. The number of LBW cases in Indonesia was 10.2% in 2018. The incidence of LBW is a significant public health problem because it has an impact on health and cognitive, motor, and social/emotional function development, both in the short and long term.

Low birth weight infants have a higher risk of death due to hypothermia and must be treated in the intensive care unit and cared for

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in an incubator. In addition, LBW is at risk for infectious diseases, growth and development delays, and death in childhood (Soleimani et al., 2014; Ballot, et al., 2012). Kangaroo Method Care (KMC) is one way to keep the baby's body temperature warm and prevent heat loss in the baby's body. KMC is a treatment for LBW by making direct contact between the baby's skin and the mother's skin (skin-to-skin contact). Mothers who practice KMC can regulate or adjust their body temperature to the baby's temperature and can reduce the risk of hypothermia in LBW (Agudelo CA & Belizán JM, 2011; Boundy, et al., 2018; Ludington-Hoe, S. M., et al., 2000; Ludington-Hoe SM, 1993).

Low birth weight babies can receive KMC inside and outside the hospital. Kangaroo Care Method can be performed on LBW whose condition is stable, i.e. they can breathe spontaneously, are able to breastfeed or get breast milk through a cup or spoon, and do not have serious health problems. Low birth weight infants who return home after intensive care in the hospital have various risk factors for disease, developmental disorders, and survival. Optimal LBW care and continuous practice of KMC at home are very necessary to keep the baby's temperature stable and avoid health problems in the baby.

North Jakarta is the area with the 2nd highest prevalence of IMR and LBW in DKI Jakarta. Based on a preliminary study through a qualitative approach conducted in the Districts of Koja, Tanjung Priok, and Cilincing, North Jakarta (Mustikawati, IS, et al., 2020), It was found that the KCM practice carried out by LBW mothers at home was not as optimal as the KCM practice that was done previously in the hospital. The difference in conditions between the hospital and the home will affect the practice of KCM at home. Based on the results of interviews with LBW mothers, it was found that several inhibiting factors in

practicing KCM at home, namely the lack of understanding and belief of mothers that KCM is a solution to LBW problems. Therefore, this study aims to analyze the relationship between knowledge, attitudes, and practices of KCM among LBW mothers in North Jakarta.

## Method

This study is a quantitative study with a cross-sectional approach. The population in this study were mothers who had low birth weight after treatment from the Regional General Hospital (RSUD) Koja, North Jakarta, who were domiciled in the Districts of Koja, Tanjung Priok, and Cilincing, North Jakarta. The sample size was calculated using the cross sectional sample formula (Lemeshow et al, 1997), so the number of samples in this study was 50 people. The sampling technique used was consecutive sampling, where all respondents who had certain criteria were included in the study, namely mothers who had babies weighing <2300 g at the time of the study, healthy mothers and having healthy babies.

Data was collected using a questionnaire to measure knowledge, attitudes, and practices of KCM among LBW mothers. To add to the results obtained in the collection of quantitative data, observations were also carried out aimed at observing the practice of KCM in LBW mothers. Data analysis in this study consisted of univariate analysis which was used to present data on knowledge, attitudes, and practices of KCM in LBW mothers and bivariate Spearman Correlation analysis which was used to analyze the relationship between knowledge, attitudes, and practices of KCM among LBW mothers. The research ethics letter was obtained from the Research Ethics Committee and Public Health Service, Faculty of Public Health, University of Indonesia No. 767/ UN.2/F.10/ PPM.00.02/2019.

## Results and Discussion

The following are the characteristics of respondents in this study.

Table 1. Characteristics of Respondent

Variable	Mean (SD)
Mother's age (years)	30,83 (7,135)
Gestational age (weeks)	33,77 (1,832)
Baby's birth weight (gr)	1864,48 (174,38)
Baby's weight home (gr)	1936,88 (129,25)

  

Variable	n (%)
Mother's education	
- Low education	23 (46)
- High education	27 (54)
Mother's employment status	
- Does not work	47 (94)
- Work	3 (6)
Parity	
- Primipara	10 (20)
- Multipara	40 (80)
Type of childbirth	
- Normal	25(50)
- Action	25 (50)
Nearest health facility	
- Public health center	46 (92)
- Clinic	4 (8)
Distance to health facilities	
- <1 km	27 (54)
- 1-3 km	15 (30)
- >3 km	8 (16)

Source: Primary data, 2020

Knowledge of LBW mothers about KCM in this study was measured by asking respondents by filling out a questionnaire consisting of 12 questions. Questions about KCM included the definition of KCM, the main benefits of KCM, duration of KCM, limits of KCM, KCM equipment, KCM actors, preparation before KCM, danger signs during KCM, the best drink for LBW, how to breastfeed, and frequency of breastfeeding. Based on the results of the study, the average score of mother's knowledge about KCM is 21.76 (SD 1.06). Most of the LBW mothers were able to correctly answer questions about the definition of KCM, the main benefits of KCM, the duration of KCM, KCM clothes, KCM cloth, preparation before KCM, the best drink for LBW, how to breastfeed, and the frequency of breastfeeding. However, they do not know about the duration of KCM, the perpetrators of KCM, and the danger signs during KCM.

Knowledge is the result of knowing

and occurs after someone has sensed a certain object. Knowledge is the result of a person's learning process for something that is heard or seen. In general, LBW mothers in this study knew about KCM. This could be because LBW mothers had previously received education about KCM at Koja Hospital, North Jakarta, so they were exposed to information about KCM.

The results of this study are in agreement with other studies in India (Darmstadt et al., 2006) that the mother knows that KCM is useful for preventing hypothermia, making the baby comfortable, and increasing the mother's ability to prevent evil spirits (according to local culture). Other research in India (Mazumder, S., et al., 2018) also mentioned that the mother knew that KCM was beneficial for increasing the baby's weight and increasing the baby's activity. Likewise with research in Ethiopia (Roba, A., et al., 2017) which stated that most of the mothers knew the benefits of KCM and research in Ghana (Nguah et al., 2011) that

mothers know that KCM is beneficial for both mother and baby.

However, in this study, it was found that there were LBW mothers who still did not know about the danger signs during KCM, the duration of KCM, and the perpetrators of KCM. The results of this study are in agreement with other studies in Nigeria (Opara, PI & Okorie, 2017) that mothers do not know that other people can replace mothers to practice KCM. There are several stages of receiving information in a training or education, namely reaction, analysis, application, and results in the organization (Smidt et al., 2009). Referring to the model, the LBW mothers in this study were at the analytical level, where when they were exposed to information about KCM previously in the hospital, there was information that was accepted or not well received by LBW mothers.

Mother's attitude towards KCM in this study was measured by asking the respondents by filling out a questionnaire consisting of 8 statements. The statement of attitude towards KCM includes the benefits of KCM, duration of KCM, KCM actors, the best drink for LBW, KCM and breastfeeding. Based on the results of the study, the average score of the mother's attitude towards KCM was 26.74 (SD 0.80). Most of the LBW mothers agreed and strongly agreed that KCM can provide warmth to the baby, increase breastfeeding, increase affection between mother and baby, increase baby's weight, and mothers can breastfeed their babies when doing KCM. However, they do not agree if KCM is carried out continuously or 24 hours a day, if KCM is carried out by all family members, and if small babies do not need to be given additional formula milk to gain weight quickly.

Attitude is a reaction or response that is still closed from a person to a stimulus or object. Attitude is also a readiness or willingness to act and is also the implementation of certain motives. Attitude is a person's closed response to a stimulus or object, both internal and external so that its manifestation cannot be directly seen, but can only be interpreted beforehand from the closed behavior. Attitudes in reality indicate a suitability of responses to certain stimuli.

In general, LBW mothers in this study agreed about the benefits of KCM. This could

be because LBW mothers had previously been exposed to information about KCM at Koja Hospital, North Jakarta, so they agreed that KCM was beneficial for their babies. The results of this study are in accordance with research in Ethiopia (Roba, A., et al., 2017) that most mothers have a positive attitude towards KCM, where KCM can stabilize the baby's temperature, improve the relationship between mother and baby, improve infant development, and have a positive impact on breastfeeding. While other research in India (Darmstadt et al., 2006) that skin-to-skin contact (KCM) is thought to prevent hypothermia in newborns, increase the mother's ability to protect her baby from evil spirits, and make the baby more comfortable.

However, in this study it was found that there were LBW mothers who did not agree that KCM should be carried out continuously or 24 hours a day, KCM can be done by all family members, and that small babies do not need to be given additional formula milk to gain weight quickly. The results of this study are in agreement with other studies in India (Mazumder, S., et al., 2018) that mothers do not agree to practice KCM for a long time because mothers need to rest after giving birth. Attitudes can be divided into negative attitudes, namely attitudes that indicate rejection or disapproval of the prevailing norms where the individual is located and positive attitudes, namely attitudes that indicate acceptance of the prevailing norms where the individual is located.

The practice of KCM for LBW mothers in this study was measured by asking respondents by filling out a questionnaire regarding the duration of mothers practicing KCM in one day (hours/day) and observing the position of KCM through an observation sheet. All LBW mothers continued the practice of KCM at home after treatment from the hospital with different durations of time. The average duration of KCM practice for LBW mothers is 2.92 hours/day (SD 0.90). Based on observations, it was found that most of the LBW mothers had practiced KCM by holding the KCM in the right position, namely skin-to-skin contact between mother and baby with the mother and baby undressed. However, it was found that there were a small number of LBW mothers who did not properly



position the KCM, for example only a small part of the baby's body was attached to the mother's skin and the KCM was too tight or loose. The improper position of holding KCM can reduce the benefits of skin-to-skin contact between mother and baby.

Practice or action is the realization of the knowledge and attitude of a real action. Action is a person's response to a stimulus in a real or open form. Action is a movement or action of the body after receiving stimulation or adaptation from inside or outside the body of an environment. Knowledge and attitudes of LBW mothers regarding KCM will also affect the practice of KCM.

Several studies show that there are different durations of practicing KCM (Dawar, et al., 2019; Nguah et al., 2011; Opara, PI & Okorie, 2017; Rasaily, R., et al., , 2017). A study in India (Dawar et al., 2019) mentioned that KCM was practiced with an average duration of 3.3 hours per day and 5.1 days per week. While other research in India (Raajashri, R. & Adhisivam, B., 2018) mentioned that mothers practice KCM at home with an average FMD duration of 1.3 hours per day. A study in Ghana (Nguah et al., 2011) mentioned that most mothers prefer to practice KCM intermittently even though they have been given previous education at the hospital to give KCM continuously because the benefits are better than KCM intermittently. While other studies in Nigeria (Opara, PI & Okorie, 2017) shows that mothers practice KCM with an average of 3.25 hours/day.

The results of this study are not far from other studies that most mothers practice KCM for 2 hours in one day (Bazzano et al., 2012) and another study conducted in India found that the average mother practiced KCM for five hours per day and 55.4% of these women initiated KCM within 72 hours of birth (Rasaily, R., et al., 2017). While research conducted in Nigeria (Opara, PI & Okorie, 2017) showed that more than 95% of mothers felt comfortable in practicing KCM at home with KCM duration of  $3.25 \pm 2.85$  hours (0.5-12 hours) per day and no baby had problems with KCM. Research conducted in Ethiopia (Roba, A., et al., 2017) mentioned that mothers practice KCM for 2 hours/day. The average score of KCM

knowledge, attitudes, and practices can be seen in the following table.

Table 2. Knowledge, Attitude, and Practice of KCM among LBW mothers

Variable	Mean (Sd)
Knowledge of KCM	21,76 (1,06)
Attitude about KCM	26,74 (0,80)
KCM Practice	2,92 (0,90)

Source: Primary data,2020

Based on the statistical test of Spearman Correlation, there is a relationship between knowledge of LBW mothers about KMC and KMC practice ( $p$  value  $<0.05$ ;  $r=0.53$ ). Thus, the knowledge of LBW mothers about KMC has a strong relationship with the practice of KMC. In this study, in general, LBW mothers know and have received education about KMC before at Koja Hospital, so that this knowledge can influence mothers to practice KMC at home.

Knowledge is the result of a person's learning process for something that is heard or seen. Knowledge is the most important factor (predisposition) that can influence behavior. The better a person's knowledge, the better his behavior. Knowledge relates to the amount of information a person has, where the more information a person has, the higher a person's knowledge. The more information LBW mothers have about KMC, the better their knowledge and understanding of KMC will be.

The existence of supporting factors in practicing KMC is an important factor that makes mothers willing and able to do KMC. These supporting factors can come from mothers, families, communities, and health services (Mustikawati, IS, et al., 2020). Factors that come from the mother herself, for example, the mother's knowledge and awareness about the benefits of KMC. In this study, the mother's knowledge of KMC can influence the practice of KMC.

The results of this study are in accordance with other studies, that mother's knowledge of KMC can improve KMC practice (Alenchery et al., 2018; Darmstadt et al., 2006; Nguah et al., 2011; Mazumder, S., et al., 2018). Knowledge of the benefits of KMC and how to do KMC will improve the implementation of KMC. The existence of knowledge about KMC can

increase awareness of KMC and can improve the practice of KMC at home with the support of family members (Alenchery et al., 2018).

Based on the Spearman Correlation statistical test, there was a relationship between the attitudes of LBW mothers regarding KMC and the practice of KMC (p value <0.05; r=0.55). Thus, the attitude of LBW mothers regarding KMC has a strong relationship with the practice of KMC. In this study, in general, LBW mothers had a positive attitude towards the benefits of KMC. According to them, the reason for wanting to practice KMC at home is so that the baby's weight increases, is healthy, and strong. The existence of a positive attitude can influence mothers to practice KMC at home.

Attitude is a person's response to a stimulus obtained from his five senses. Someone who is positive about the benefits of KMC, it will improve the practice of KMC. Lack of assistance in KMC practice, and lack of mother's awareness of KMC and baby's health are inhibiting factors for KMC implementation (Seidman et al., 2015). Mothers who have good knowledge, attitudes, and practices regarding KMC can influence the results of KMC so that the baby's weight can be optimal (Nguah et al., 2011)

Behavior is a response to a stimulus that is influenced by many factors, including personal characteristics. Factors that influence behavior are divided into internal factors and external factors. Internal factors are factors that come from within a person, such as age, gender, etc., and external factors come from outside the person, such as physical, social, cultural, economic, political and other environments. Behavior is determined by three groups of factors, namely predisposing factors which include individual knowledge, attitudes, beliefs, traditions, social norms and other elements contained in individuals and society; enabling factors, namely the availability of health services and facilities; and reinforcing factors which constitute the attitude and behavior of workers.

The results of this study are consistent with other studies, that a positive attitude about the benefits of KMC can improve the practice of KMC. A study in India showed that awareness of the benefits of KMC will manifest

in practice, where LBW mothers agree that KMC is beneficial for increasing baby weight and activity (Mazumder, S., et al., 2018) and mothers who realize the benefits of KMC, will practice KMC at home (Alenchery et al., 2018). In Ghana, almost all LBW mothers think that Kangaroo Method Care (KMC) is beneficial for both mother and baby and they are willing to practice it and will recommend KMC to other mothers (Nguah et al., 2011). The relationship between knowledge, attitude, and practice of Kangaroo Method Care (KMC) in LBW mothers can be seen in Table 3.

Table 3. KCM Knowledge, Attitude and Practice Relationship to LBW mothers

	Practice	
	r	Value p
Knowledge	0,530	<0,001
Attitude	0,549	<0,001

Source: Primary data, 2020

### Conclusion

Based on the results of the study, the average score of mother's knowledge about Kangaroo Method Care (KMC) was 21.76 (SD 1.06), where most of the LBW mothers knew about the definition of KMC, the main benefits of KMC, KMC period, KMC clothes, KMC cloth, preparation before KMC, best drink for LBW, method of breastfeeding, and frequency of breastfeeding. However, they do not know about the duration of KMC, the perpetrators of KMC, and the danger signs during KMC. The average score of the mother's attitude towards KMC is 26.74 (SD 0.80), where most of the LBW mothers agree and strongly agree that KMC can provide warmth to the baby, increase breastfeeding, increase affection between mother and baby, increase the baby's weight, and the mother can breastfeed the baby when doing KMC. However, they do not agree if Kangaroo Method Care (KMC) is carried out continuously or 24 hours a day, if KMC is carried out by all family members, and if small babies do not need to be given additional formula milk to gain weight quickly. The average duration of KMC practice was 2.92 hours/day (SD 0.90). Based on observations, it was found that most of the LBW mothers had practiced KMC by holding the KMC in the right position. Based

on the Spearman Correlation statistical test, it was found that there was a relationship between knowledge, attitude, and practice of KMC in LBW mothers. It is necessary to provide continuous communication, information, and education to LBW mothers to improve knowledge, attitudes, and practices of KMC.

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